

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 11, 14, 15 and 18 are pending in the application. Claims 11, 15 and 18 are amended by the present amendment. Support for the amended claims can be found in the original specification, claims and drawings.¹ No new matter is presented.

In the outstanding Official Action, Claims 11, 14, 15 and 18 were rejected under 35 U.S.C. §112, second paragraph; Claims 11, 15 and 18 were rejected under 35 U.S.C. §102(a) as anticipated by background material presented in the application (hereinafter Background); and Claim 14 was rejected under 35 U.S.C. § 103(a) as unpatentable over Background in view of Doetsch et al. (U.S. Patent No. 6,571,366, hereinafter Doetsch).

Claims 11, 14, 15 and 18 were rejected under 35 U.S.C. §112, second paragraph, as omitting essential structural cooperative relationships. In response to this rejection, the claim language cited in the outstanding Official Action has been removed from independent Claims 11 and 15, thereby rendering this rejection moot.

In response to the rejections noted above, Applicant respectfully submits that amended independent Claims 11 and 15 recite novel features clearly not taught or rendered obvious by the applied references.

Amended independent Claim 11 recites a turbo decoder operative to use a soft output Viterbi algorithm (SOVA), which includes a first SOVA decoding unit and a second SOVA decoding unit. An output of the first SOVA decoding unit is connected to an input of the second SOVA decoding unit and an output of the second SOVA decoding unit is connected to an input of the first SOVA decoding unit. The turbo decoder further includes a

¹ e.g., specification, Fig. 2 and p. 6, lines 5-12.

normalization unit, and an output of the normalization unit is connected to the output of the first SOVA decoding unit. Independent Claim 11 is further amended to recite

*wherein **no normalization unit is provided between the output of the second SOVA decoding unit and the input of the first SOVA decoding unit.***

Independent Claim 15, while directed to an alternative embodiment, is amended to recite substantially similar features. Accordingly, the remarks presented below are applicable to each of independent Claims 11 and 15.

As disclosed in an exemplary embodiment at Fig. 2 and p. 6, lines 5-12, the output of a first SOVA decoder (25) is connected to the only normalization unit (27) of the turbo decoder and no normalization unit is provided between the output of the second SOVA decoder (30) and the input of the first SOVA decoder. As noted at p. 7, lines 23-34, normalizing only a subset of the SOVA decoders yields very good performance while reducing the computational complexity of the decoder.

In rejecting independent Claims 11 and 15, the Official Action relies on Fig. 3 and p. 2, lines 7-14 of the specification. In this Background portion of the specification, a turbo decoder is described, which includes a first normalization unit (27) connected to an output of a first decoder (25) and a second normalization unit (33) connected to an output of a second decoder (30). Thus, the Background describes a configuration in which a normalization unit is provided for each decoding unit, and more specifically a normalization unit (33) is provided between the output of the second decoder (30) and the input of the first decoder (25).

This is in clear contrast to amended independent Claim 11, which recites that “***no normalization unit is provided between the output of the second SOVA decoding unit and the input of the first SOVA decoding unit.***”

At p. 5, the outstanding Official Action further asserts that the deinterleavers (26, 31) depicted in Fig. 3 are “decoding units.” However, the pending claims are amended to clarify that the claimed decoding units are ***SOVA decoding units***, support for which can be found at least at p. 7, line 23 and p. 8, lines 3-4 of the specification. As further noted at p. 5 of the Official Action, deinterleavers simply reconstruct interleaved data and are not soft output Viterbi algorithm decoders, such as those recited in the pending claims.

Therefore, Background fails to teach or suggest a turbo decoder having the configuration recited in Claim 11 in which “***no normalization unit is provided between the output of the second SOVA decoding unit and the input of the first SOVA decoding unit.***”

Accordingly, Applicant respectfully requests that the rejection of Claims 11 and 15 under 35 U.S.C. § 102 be withdrawn.

With regard to the rejection of Claim 14 under 35 U.S.C. § 103(a) as unpatentable over Background in view of Doetsch, it is noted that Claim 14 depends from Claim 11, and is believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Doetsch does not cure any of the above-noted deficiencies of Background.

Accordingly, Applicant respectfully requests that the rejection of Claim 14 under 35 U.S.C. § 103 be withdrawn.

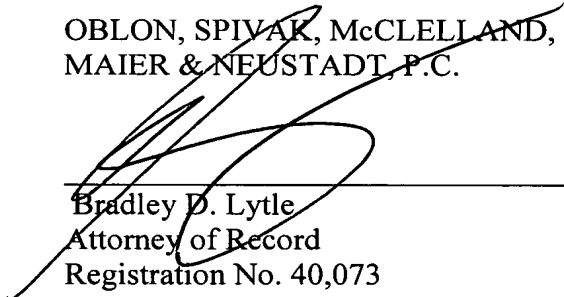
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Consequently, in view of the present amendment and in view of the foregoing comments it is respectfully submitted that the invention defined by Claims 11, 14, 15 and 18 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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